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*Admitted only in Maryland
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*Practice limited to Federal Agencies

December 28, 2004

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Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Re: U.S. Utility Patent Application
Appl. No.: 10/761,277; Filed: January 22, 2004
For: **Method of Fabricating Patterned Polymer Film with Nanometer Scale**
Inventors: Yang *et al.*
Our Ref: 2236.0030000/JUK/GSB

Sir:

The following documents are forwarded herewith for appropriate action by the U.S. Patent and Trademark Office:

1. Information Disclosure Statement;
2. Six (6) sheets of Form PTO-1449 listing twenty-nine (29) documents;
3. One (1) copy each of twenty-eight (28) documents (AN1-AR1, AN2-AR2, AN3-AR3, AN4-AR4, AN5-AR5 and AN6-AP6); and
4. One (1) return postcard.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

Commissioner for Patents
December 28, 2004
Page 2

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



George S. Bardmesser
Attorney for Applicants
Registration No. 44,020

JUK/GSB/mlb
Enclosures
348006_1.DOC



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Yang *et al.*

Appl. No.: 10/761,277

Filed: January 22, 2004

For: **Method of Fabricating Patterned
Polymer Film with Nanometer
Scale**

Confirmation No.: 3167

Art Unit: 1762

Examiner: Meeks, Timothy Howard

Atty. Docket: 2236.0030000/JUK/GSB

Information Disclosure Statement

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- ☒ 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- ☐ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.
 - ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than

three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

☐ c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$_____ in payment of the fee under 37 C.F.R. § 1.17(p).

☐ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$_____ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:

☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

- ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- ☐ 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.
- ☐ 6. A concise explanation of the relevance of the non-English language document(s) appears below in accordance with 37 C.F.R. § 1.98(a)(3).
- ☒ 7. Copies of documents AN1-AR1, AN2-AR2, AN3-AR3, AN4-AR4, AN5-AR5, and AN6-AP6 are enclosed. However, in accordance with 37 C.F.R. § 1.98(a)(2), a copy of the U.S. patent cited on the attached Form PTO-1449 (document AA1) is not enclosed.
- ☐ 8. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. _____, filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

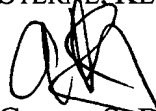
- ☐ 9. It is expected that the examiner will review the prosecution and cited art in the parent application no(s). _____ in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed Form PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



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Date: 12/28/04
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FORM PTO-1449

INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.
2236.0030000

APPLICATION NO.
10/761,277

FIRST NAMED INVENTOR
Seung-Man YANG

FILING DATE
January 22, 2004

ART UNIT
1762

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA1	6,375,870 B1	04/2002	Visovsky <i>et al.</i>			
	AB						
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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AK						Yes No
	AL						Yes No
	AM						Yes No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	AN1	Aizenberg, J. <i>et al.</i> , "Patterned Colloidal Deposition Controlled by Electrostatic and Capillary Forces," <i>Physical Review Letters</i> , Vol. 84, No. 13, pp. 2997-3000, The American Physical Society (2000).
	AO1	Bechinger, C. <i>et al.</i> , "Submicron metal oxide structures by a sol-gel process on patterned substrates," <i>Thin Solid Films</i> , Vol. 366, pp. 135-138, Elsevier Science S.A. (2000).
	AP1	Chen, W. and H. Ahmed, "Fabrication of 5-7 nm wide etched lines in silicon using 100 keV electron-beam lithography and polymethylmethacrylate resist," <i>Applied Physics Letters</i> , Vol. 62, No. 13, pp. 1499-1501, The American Institute of Physics (1993).
	AQ1	Chou, S.Y. <i>et al.</i> , "Imprint Lithography with 25-Nanometer Resolution," <i>Science</i> , Vol. 272, pp. 85-87, The American Institution for the Advancement of Science (1996).
	AR1	Dimitrov, A.S. and K. Nagayama, "Continuous Convective Assembling of Fine Particles into Two-Dimensional Arrays on Solid Surfaces," <i>Langmuir: The ACS Journal of Surfaces and Colloids</i> , Vol. 12, No. 5, pp. 1303-1311, The American Chemical Society (1996).

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

FORM PTO-1449

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2236.0030000APPLICATION NO.
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	AA						
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	AK						Yes No
	AL						Yes No
	AM						Yes No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	AN2	Frigo, N.J., "Passive Optical Networks," <i>Optics & Photonics News</i> , pp. 24-29 (1996).
	AO2	Hagleitner, C. <i>et al.</i> , "Smart single-chip gas sensor microsystem," <i>Nature</i> , Vol. 414, Issue No. 6861, pp. 293-296, Nature Publishing Group (2001).
	AP2	Heegr, A.J. and J. Long Jr., "Conjugating polymers," <i>Optics & Photonics News</i> , pp. 24-30 (1996).
	AQ2	Hulteen, J.C. <i>et al.</i> , "Nanosphere Lithography: Size-Tunable Silver Nanoparticle and Surface Cluster Arrays," <i>Journal of Physical Chemistry B</i> , Vol. 103, No. 19, pp. 3854-3863, The American Chemical Society (1999).
	AR2	Kim, S.-R. <i>et al.</i> , "Fabrication of Polymeric Substrates with Well-Defined Nanometer-Scale Topography and Tailored Surface Chemistry," <i>Advanced Materials</i> , Vol. 14, No. 20, pp. 1468-1472, Wiley-VCH Verlag GmbH & Co. (October 2002).

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	AK						Yes No
	AL						Yes No
	AM						Yes No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	AN3	Krug, C. and J.F. Hartwig, "Direct Observation of Aldehyde Insertion into Rhodium-Aryl and -Alkoxide Complexes," <i>Journal of the American Chemical Society</i> , Vol. 124, No. 8, pp. 1674-1679, The American Chemical Society (published on web January 2002).
	AO3	Kumar, A. and G.M. Whitesides, "Features of gold having micrometer to centimeter dimensions can be formed through a combination of stamping with an elastomeric stamp and an alkanethiol "ink" followed by chemical etching," <i>Applied Physics Letters</i> , Vol. 63, No. 14, pp. 2002-2004, The American Institute of Physics (1993).
	AP3	Li, H. <i>et al.</i> , "High-Resolution Contact Printing with Dendrimers," <i>Nano Letters</i> , Vol. 2, No. 4, pp. 347-349, The American Chemical Society (published on web February 2002).
	AQ3	Li, H.-W. <i>et al.</i> , "Nanocontact Printing: A Route to Sub-50-nm-Scale Chemical and Biological Patterning," <i>Langmuir: The ACS Journal of Surfaces and Colloids</i> , Vol. 19, No. 6, pp. 1963-1965, The American Chemical Society (published on web January 2003).
	AR3	Mikrajuddin, F.I. and K. Okuyama, "Single Route for Producing Organized Metallic Domes, Dots, and Pores by Colloidal Templating and Over-Sputtering," <i>Advanced Materials</i> , Vol. 14, No. 12, pp. 930-933, Wiley-VCH Verlag GmbH (June 2002).

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	AK						Yes No
	AL						Yes No
	AM						Yes No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	AN4	Odom, T.W. <i>et al.</i> , "Improved Pattern Transfer in Soft Lithography Using Composite Stamps," <i>Langmuir: The ACS Journal of Surfaces and Colloids</i> , Vol. 18, No. 13, pp. 5314-5320, The American Chemical Society (published on web May 2002).
	AO4	Schmid, H. and B. Michel, "Siloxane Polymers for High-Resolution, High-Accuracy Soft Lithography," <i>Macromolecules</i> , Vol. 33, No. 8, pp. 3042-3049, The American Chemical Society (2000).
	AP4	Sprenger, M. <i>et al.</i> , "Hierarchical Pattern Replication by Polymer Demixing," <i>Advanced Materials</i> , Vol. 15, No. 9, pp. 703-706, Wiley-VCH Verlag GmbH & Co. (May 2003).
	AQ4	Velev, O.D. <i>et al.</i> , "A Class of Microstructured Particles Through Colloidal Crystallization," <i>Science</i> , Vol. 287, No. 5461, pp. 2240-2243, The American Association for the Advancement of Science (2000).
	AR4	Werts, M.H.V. <i>et al.</i> , "Nanometer Scale Patterning of Langmuir-Blodgett Films of Gold Nanoparticles by Electron Beam Lithography," <i>Nano Letters</i> , Vol. 2, No. 1, pp. 43-47, The American Chemical Society (published on web 2001).

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	AN5	Winzer, M. <i>et al.</i> , "Fabrication of nano-dot- and nano-ring-arrays by nanosphere lithography," <i>Applied Physics A: Materials Science & Processing</i> , Vol. 63, pp. 617-619, Springer-Verlag (1996).
	AO5	Wu, M.-H. and G.M. Whitesides, "Fabrication of arrays of two-dimensional micropatterns using microspheres as lenses for projection photolithography," <i>Applied Physics Letters</i> , Vol. 78, No. 16, pp. 2273-2275, The American Institute of Physics (2001).
	AP5	Wu, W. <i>et al.</i> , "Large area high density quantized magnetic disks fabricated using nanoimprint lithography," <i>Journal of Vacuum Science and Technology B</i> , Vol. 16, No. 6, pp. 3825-3829, The American Vacuum Society (1998).
	AQ5	Xia, Y. <i>et al.</i> , "Non-Photolithographic Methods for Fabrication of Elastomeric Stamps for Use in Microcontact Printing," <i>Langmuir: The ACS Journal of Surfaces and Colloids</i> , Vol. 12, No. 16, pp. 4033-4038, The American Chemical Society (1996).
	AR5	Xia, Y. and G.M. Whitesides, "Soft Lithography," <i>Angewandte Chemie</i> , Vol. 37, No. 5, pp. 551-575, Wiley-VCH Verlag GmbH (1998).

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	AK						Yes No
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	AM						Yes No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	AN6	Yang, S.M. and G.A. Ozin, "Opal chips: vectorial growth of colloidal crystal patterns inside silicon wafers," <i>Chemical Communications</i> , Vol. 24, pp. 2507-2509, The Royal Society of Chemistry (2000).
	AO6	Yi, D.K. and D.-Y. Kim, "Polymer nanosphere lithography: fabrication of an ordered trigonal polymeric nanostructure," <i>Chemical Communications</i> , Vol. 8, pp. 982-983, The Royal Society of Chemistry (published on web March 2003).
	AP6	Yi, G.-R. and S.-M. Yang, "Microstructures of Porous Silica Prepared in Aqueous and Nonaqueous Emulsion Templates," <i>Chemistry of Materials</i> , Vol. 11, No. 9, pp. 2322-2325, The Royal Society of Chemistry (1999).
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